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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,229	01/29/2004	Takuya Maruyama	NECPW 20.920 (100806-0025)	2593
26304	7590	04/05/2006	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			LUU, CHUONG A	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/767,229

Applicant(s)

MARUYAMA ET AL.

Examiner

Chuong A. Luu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 13, 14 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15 and 17-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claims 1-12, 15 and 17-18 have been considered but are moot in view of the new ground(s) of rejection.

## PRIOR ART REJECTIONS

### Statutory Basis

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

### The Rejections

Claims 1, 6-7, 11-12, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al. (U.S. 6,919,259 B2).

Chang a method for STI etching using endpoint detection with

(1); (15) forming a film (14A) on a semiconductor substrate (12);

performing a dry etching process for removing said film while monitoring a plasma emission at a plurality of wavelengths (see column 3, lines 1-3);

wherein said performing said dry etching process includes determining an endpoint of said dry etching process based on a change of luminous intensity obtained by a correlation of a plurality of luminous intensities of the plasma emission at said plurality of wavelengths (see column 3, lines 30-55 and column 5, lines 39-59);

(6) wherein said insulating film does not contain nitrogen (see column 5, line 42);

(7) wherein said insulating film does not contain nitrogen (see column 5, line 42);

(11) wherein said film does not contain nitrogen (see column 5, line 42);

(12) wherein said film does not contain nitrogen (see column 5, line 42);

(17) wherein the correlation includes a total of the plurality of luminous intensities (see column 3, lines 30-55 and column 5, lines 39-59).

## **PRIOR ART REJECTIONS**

### **Statutory Basis**

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

### **The Rejections**

Claims 2-5, 8-10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (U.S. 6,919,259 B2) in view of Kobayashi et al. (U.S. 5,668,019) and further in view of Arakawa et al. (U.S. 6,703,285 B2).

Chang discloses everything above except for specific wavelength of luminous intensities. However, Kobayashi a method of fabricating thin film transistor with **(8)** wherein said plurality emission band having a of different wavelengths is an luminous intensity peak in the in an emission band having a proximity of 704 nm and luminous intensity peak in the proximity of 704 nm (see column 6, lines 25-27); **(9)**; **(10)** performing a dry etching process for removing said film at least until reaching an interface while monitoring plasma emission at plurality of wavelength (see column 6, lines 6-45); wherein said performing said dry etching process includes determining an endpoint based on a change of intensity of the plasma emission at said plurality of wavelengths (see column 6, lines 6-45).

Chang and Kobayashi teach the above outlined features except for wherein said film contains nitrogen and the ratio of the plurality of luminous intensities. However, Arakawa discloses a method for manufacturing capacitor structure with **(2)** wherein said film contains nitrogen (see column 4, lines 64-67); **(3)** wherein said film contains one of SiCN and SiON (see column 4, lines 64-67 and column 5, lines 1-45); **(4)** wherein said film is a insulating film provided on another film containing nitrogen in direct contact therewith (see column 4, lines 64-67 and column 5, lines 1-45); **(5)** wherein said film is a insulating film provided on another film containing one of SiCN and SiON in direct contact therewith (see column 4, lines 64-67 and column 5, lines 1-45); **(9)**; **(10)**.....

with said nitrogen –containing film (see column 4, lines 64-67 and column 5, lines 1-45). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Chang and Kobayashi's device (accordance with the teaching of Arakawa) by forming an array electrodes since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8., and it also has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art and it is noted that the applicant does not disclose criticality in the ranges claimed. *In re Leshin*, 125 USPQ 416 and *In re Aller*, 105 USPQ 233 (see MPEP 2144.05). Doing so would facilitate the manufacture of the semiconductor device and improve the speed of the semiconductor structure.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A. Luu whose telephone number is (571) 272-1902. The examiner can normally be reached on M-F (6:15-2:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chuong Anh Luu  
Patent Examiner  
March 29, 2006